HP-60/70 SERVICE NOTES

SPECIFICATIONS

First Edition

Keyboard HP-60: 61 keys C1-C6/HP-70: 75 keys F1-G7

Tunable range HP-60: +39 cents, -50 cents

HP-70: +30 cents, -55 cents

Output level H: 0dB/M: -10dB/L: -20dB

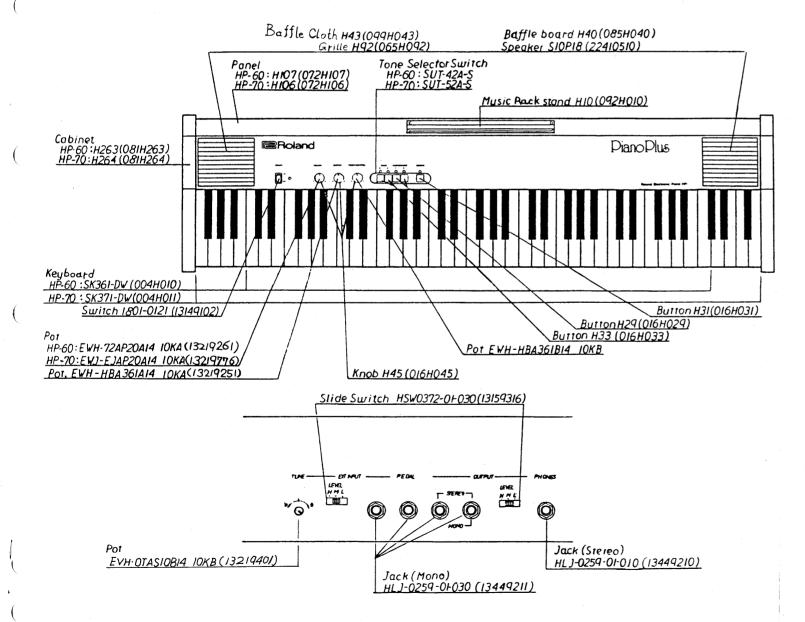
(0dB = 7V p-p @ mid. C, ff)

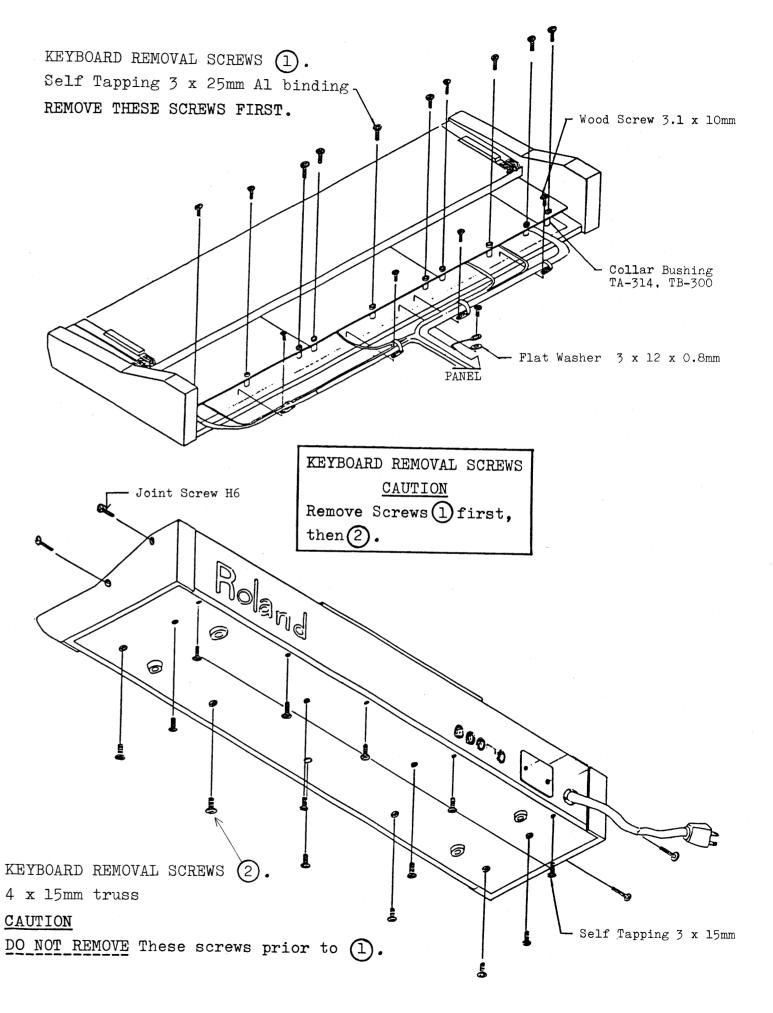
Input level H: +6dBm/M: -9dBm/L: -24dBm

Speaker 10cm x 2 Output power 2W x 2 (rms)

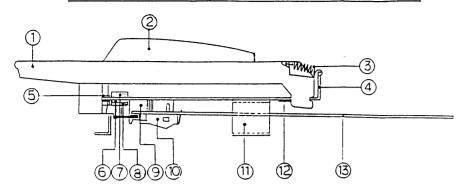
Power consumption ... HP-60: 23W/HP-70: 26W

HP-70: 1105(W) x 300(D) x 130(H)mm 12 kg





SK-361 Dw (HP-60) SK-371 Aw (HP-70) Parts List



1	106 H 026	Natural Key (With Weight) C F
1	027	" D
1	028	" EB
1	029	" G
1	030	" A
1	031	" C' F'
1	035	" G'
2	032	Sharp Key (With Weight)
3	070H029	Sharp Key Spring H29
3	034	Natural Key Spring H34
4	061 H 135	Chassis H135 (61 Notes) HP-60
4	061 H 123	" H123 (75 Notes) HP-70
5	068H 004	Guide Bush
6	107 H C64	Cushion H64
7	071 H 143	Stop Felt H143 (61 Notes) HP-60
7	167	" H 167 (75Notes) HP-70
8	071 H 168	Level Felt H 168 (61 Notes) HP-60
8	169	" H 169 (75Notes) HP-70
9	104 H 037	Holder H37
10	004H 009	Switch H9
11	062H 027	Chassis Stand H27
11	028	<i>"</i> Н28
12	098Н 006	Key Stopper H6
13).50. (61 Notes) HP-60
13		2.53.54. (75Notes) HP-70

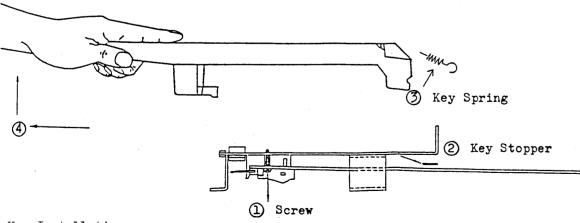
Key Removal

1. Remove Screw 1.
2. Remove Key Stopper 2.
3. Remove Key Spring 3.
Identify Key Spring if White

and Black Keys are removed, they are different in tention.

4. Pull out and up on front end of Key4.

This will disengage the Key from its mounting.



Key Installation

Reverse the order for Key Removal.

PARTS LIST

☆: HP-60 ★: HP-70

CASE

Cabinet H263 **☆ 081H263** * 081H264 Cabinet H264 **☆ 072H107** H107 Panel **★** 072H106 Panel H106 092H010 Music Rack Stand H10 065H092 Grille H92 099H043 Baffle Cloth H43 085H040 Baffle Board H40 092H011 Music Rack H11 (option) **★** 131H059 Dust Cover H59 ☆ 131H060 Dust Cover H60

KEYBOARD

\$\pprox 004H010 SK-361-DW C-C 61 notes ★ 004H011 SK-371-DW F-G 75 notes

KNOB, BUTTON

016H045 Knob H45 016H033 Button H33 ivory 016H029 Button H29 orange * 016H031 Button H31 lime

SWITCH, JACK

13149102 Switch 1801-0121 Power ☆ 13129533 Switch SUT-42A-S *** 13129534** Switch SUT-52A-S 13159316 Slide Switch HSW-0372-01-030 13449210 Jack (Stereo) HLJ-0259-01-010 Jack (Mono) HLJ-0259-01-030 13449211 2215070400 Jack Nut N-704

COIL, TRANSFORMER

12449222 Coil P-75 101 100μH 022H047J PT-H47J 100V 022H047C PT-H47C 117V 022H047D PT-H47D 220/240V

PCB ASSEMBLY

☆ 149H152	Switch Board	OPH152	(pcb 052H320A)
★ 149H153	Switch Board	OPH153	(pcb 052H320A)
☆ 141H035	Amp Board	APH035	(pcb 052H319A)
★ 147H036	Amp Board	APH036	(pcb 052H319A)
☆ 147H048	Gate Board	GTH048	(pcb 052H317B)
☆ 147H049	Gate Board	GTH049	(pcb 052H316B)
☆ 147H050	Gate Board	GTH050	(pcb 052H316B)
★ 147H051	Gate Board	GTH051	(pcb 052H318C)
★ 147H052	Gate Board	GTH052	(pcb 052H316B)
★ 147H053	Gate Board	GTH053	(pcb 052H316B)
★ 147H054	Gate Board	GTH054	(pcb 052H316B)

IC

15179129 TMS3615-25NS HP-60/70 design requires relatively uniform threshold of the TMS-3615's in a unit to sound notes having similar contour (lengths of decay and release). To meet this the Roland selects the devices to grades as follows: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 2.0 marked on face. When replacing, use the same number as on existing. 15189105 μPC4558 15229802 **BA662A** 15199510 LA4440 stereo power amp 6W 15199105N0 μPC14315H or μA7815UC (15199105F0) regulator 15169504 MN3101 BBD driver 15219213 MN3009 BBD 256-stage

TRANSISTOR

15119113 2SA1015-GR 15129114 2SC1815-GR 15129121 2SC2021-R 15119806 2SB596-O 15139101 2SK30A-GR

DIODE

☆ 13219261

15019518 RD4.7EB zener 15019252 1SS84 15019101 1S1555 15019236 W02 rectifier stack 15029103 TLR-124 LED

POTENTIOMETER

***** 13219776 EWJ-EJAP20A14 10kA x 2 13219251 EWH-HBA361A14 10kA center click 13219252 EWH-HBA361B14 10kB center click 13219401 EVH-OTAS10B14 10kB 13299106 EVT-R4SA00B53 5kB trimmer 13299101 EVT-R4SA00B14 10kB trimmer 13299102 EVT-R4SA00B15 100kB trimmer

EWH-72AP20A14 10kA

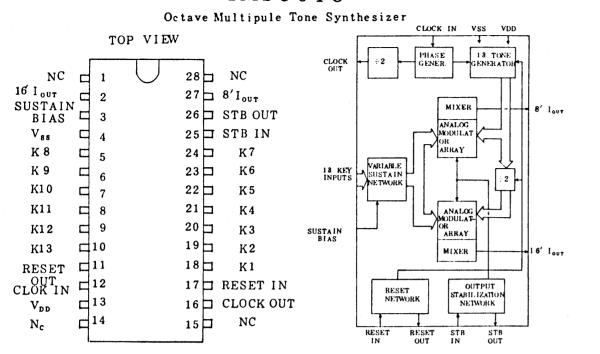
FUSE

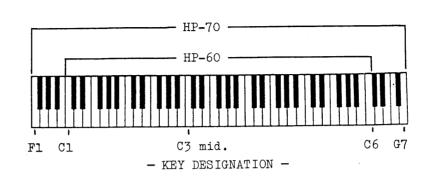
12559138 MGP 0.75A pri. 100V 12559313 MGP 0.75A CSA pri. 117V 12559507 CEE T200mA pri. 220/240V 12559521 CEE T1.6A sec. 220/240V 12559514 CEE T2.0A sec. 220/240V

OTHERS

22410510 Speaker S10P18 048H028 Heat Sink H28

TMS 3 6 1 5





ADJUSTMENTS

HP-70	Gate	GTH051	GTI	1052	GTH	1053	GTH	1054
111 -70	Key	41	G2	43	44	45	46	47
Tri	nmer	VR!	VR1	VR4	VRI	VR4	VR1	VR4
Check	point	GTHOS?	CPI	CP2	CPI	CP2	CPI	CP2

HP-60	Gate	GTH048	GTH	1049	GTH	050
111-00	Key	C2	C3	C4	C5	C6
Tri	mmer	VR1	VRI	VR4	VRI	VR4
Check	point	CPI	CP1	CP2	CPI	CP2



P-P LEVEL

Set TOUCH CONTROL VR3 at center click,

With the combination shown above. Play the key gently and adjust the VR for. 1.2V p-p waveform.

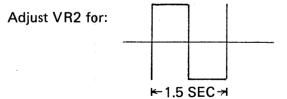
(VCF)

VR2 and VR3 are for factory set only. Do not touch them.

APH036 (HP-70 only)

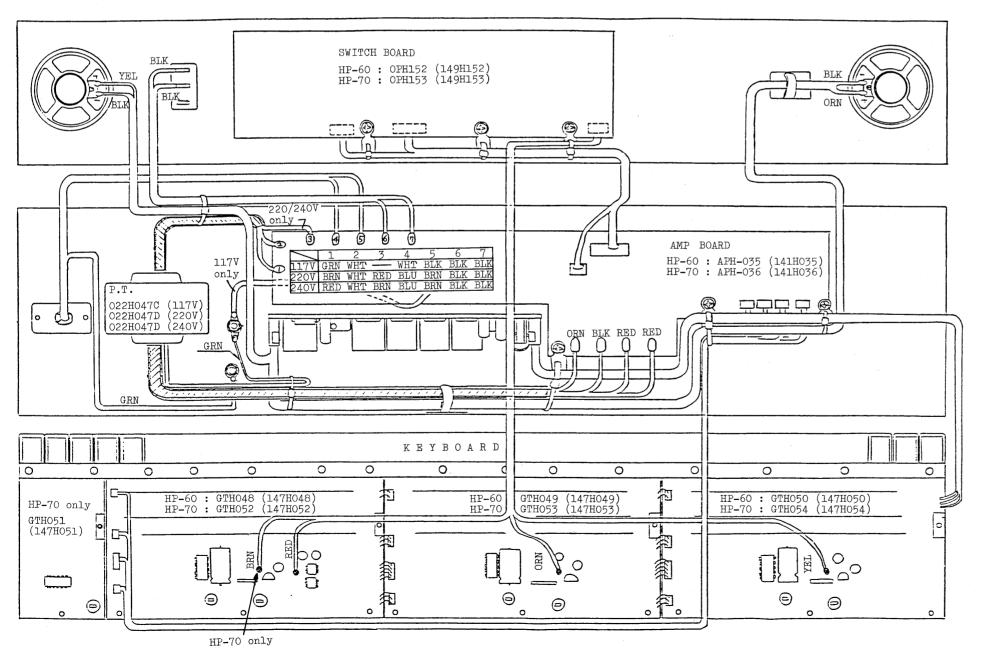
CHORUS SPEED

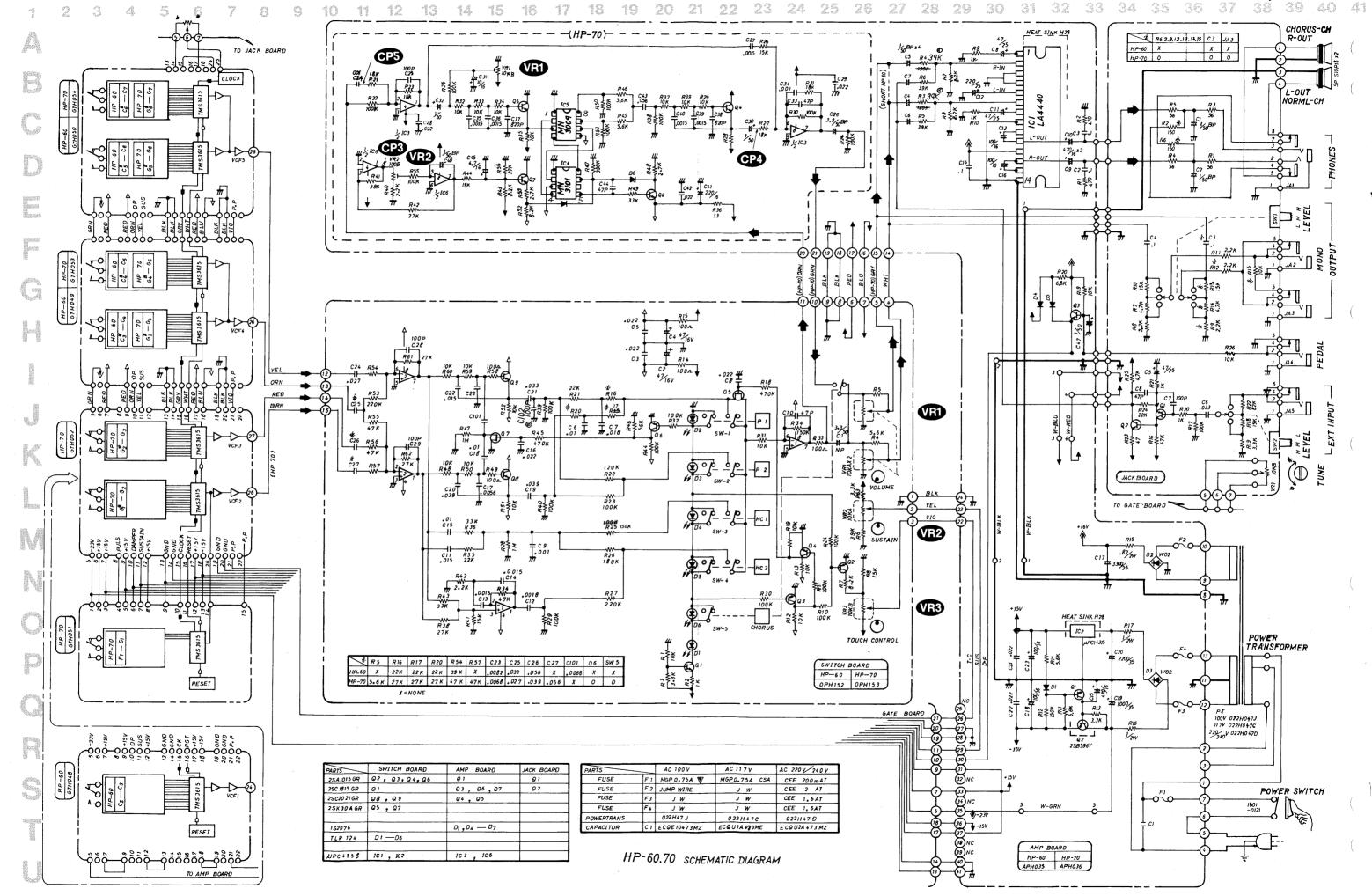
Connect oscilloscope to CP3.

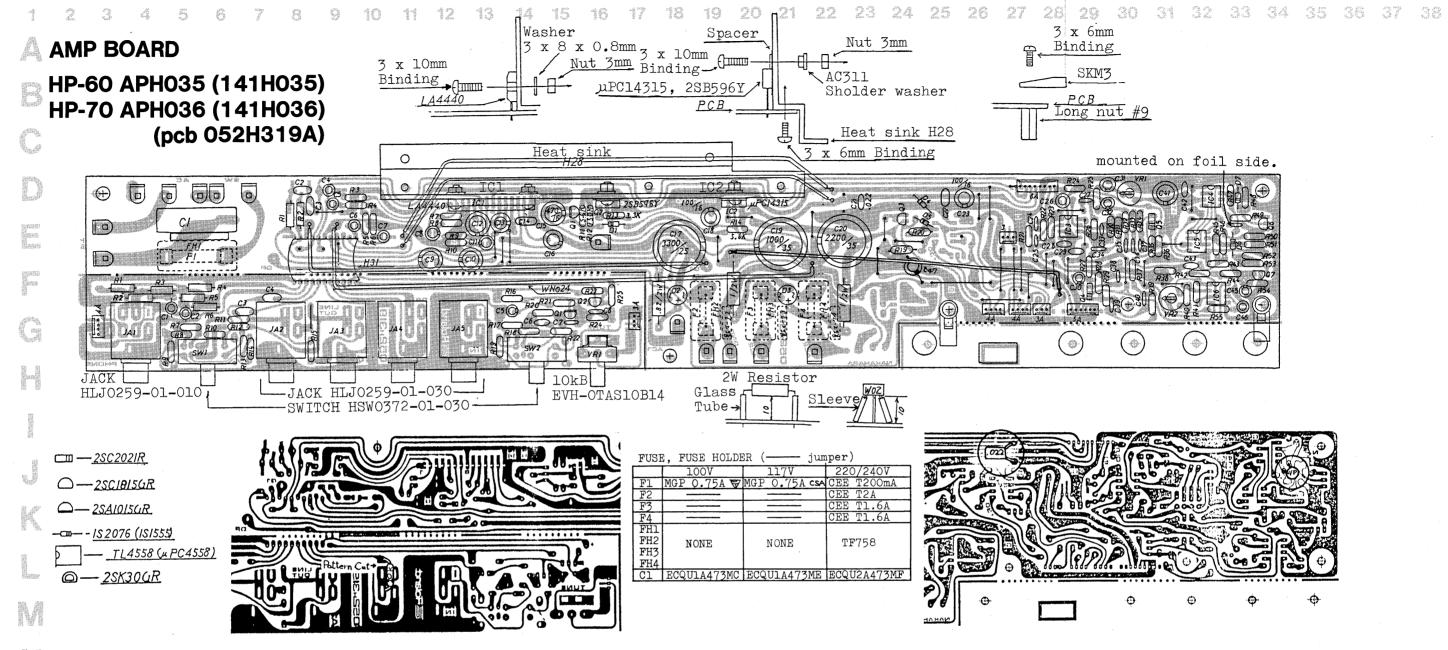


BBD BIAS

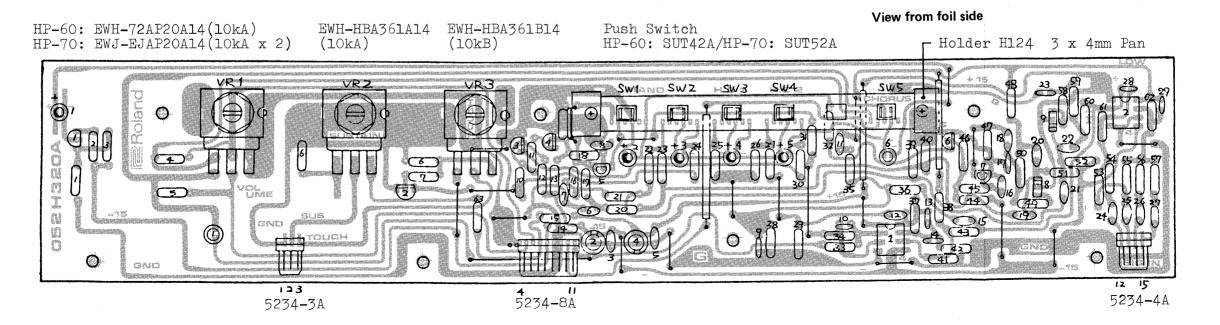
Scope to CP4.
Feed sine wave to CP5 with its level adjusted for 4V p-p at CP4.
Adjust VR1 for symmetrically flatened peaks.

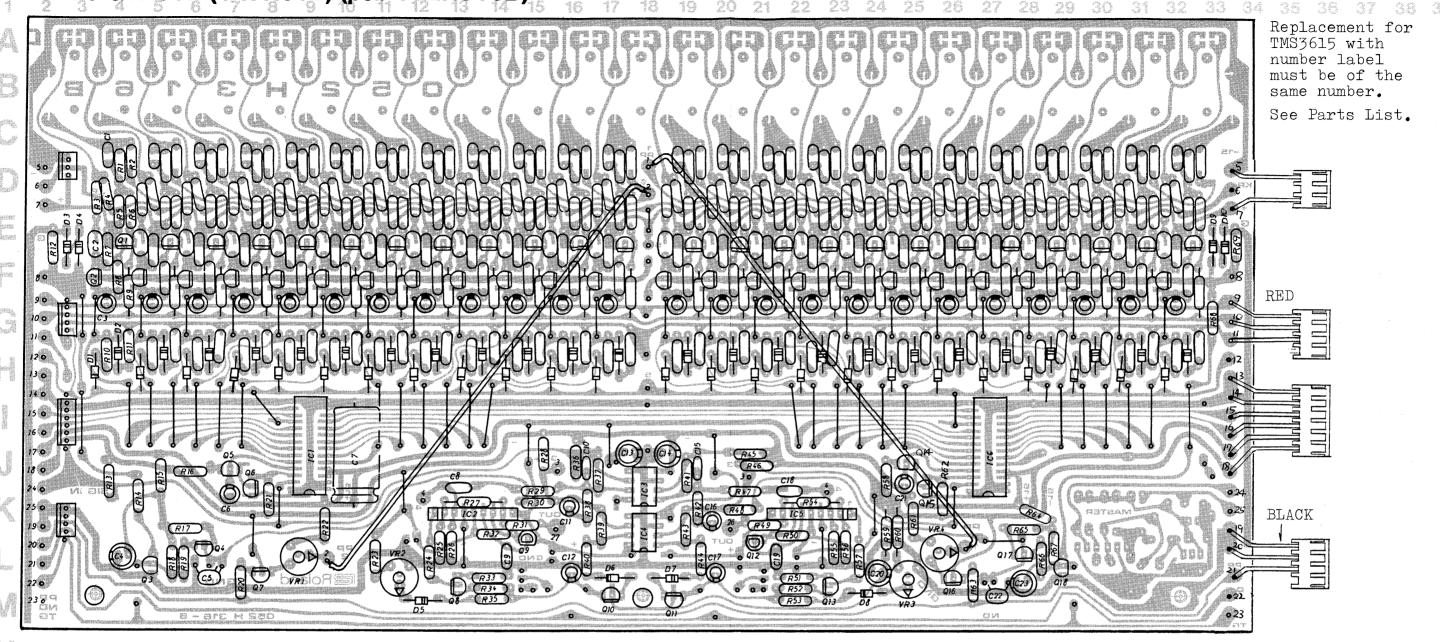


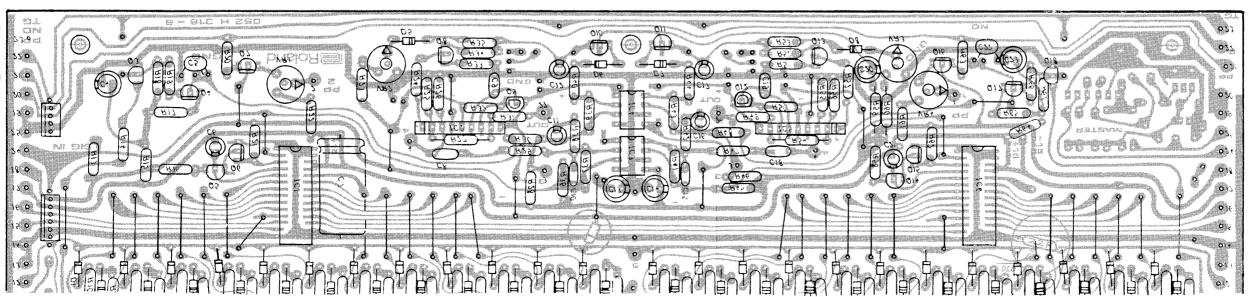




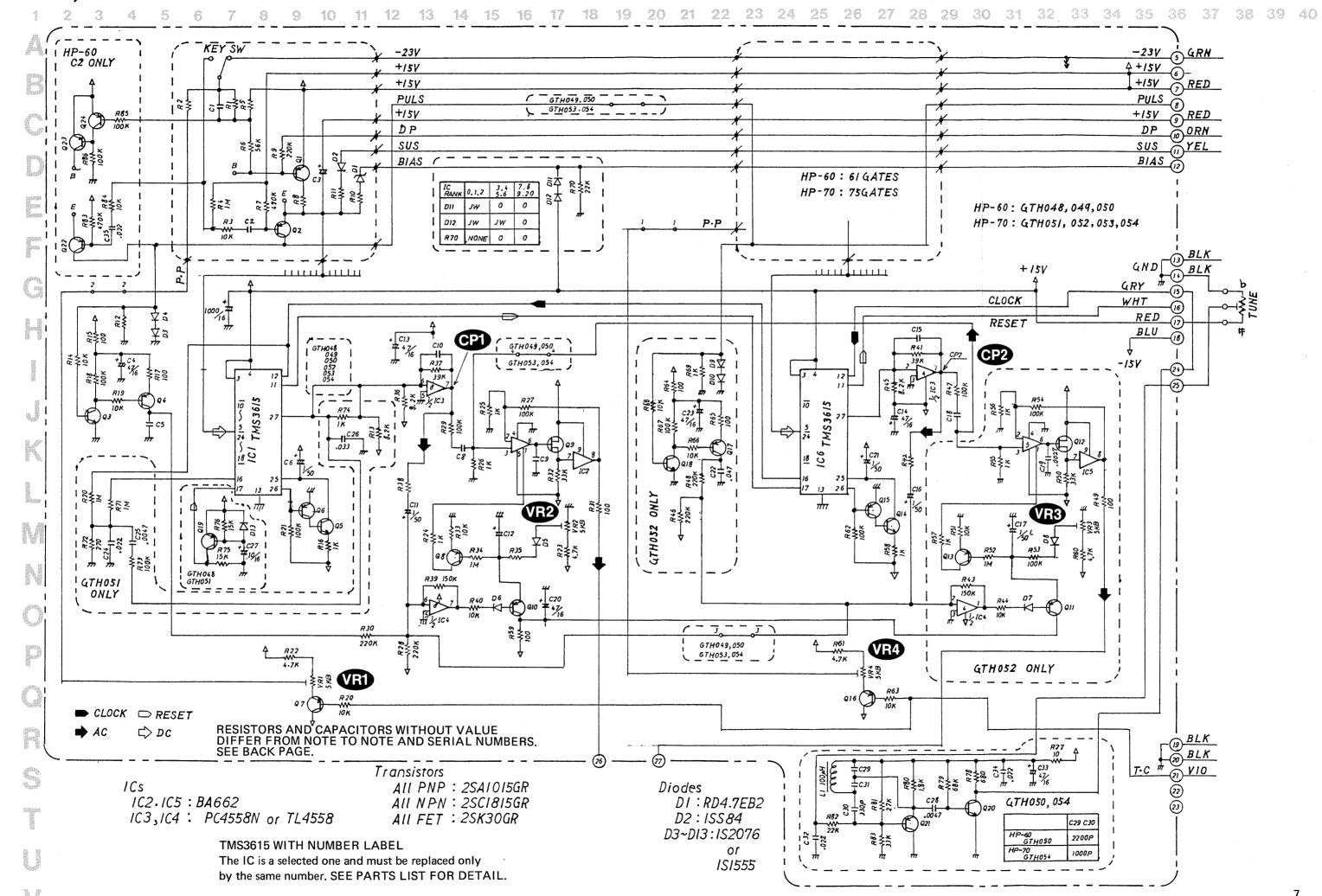
SWITCH BOARD HP-60 OPH152 (149H152)/HPO-70 OPH153 (149H153) (pcb 052H320A)







View from foil side



RESISTANCE & CAPACITANCE
R1 through C3 in the tables are different with Serial Numbers.

Those in the rightmost columns remain unchanged.

HP-60

C3, C12 : CEO4-W-MD(Low Leakage)

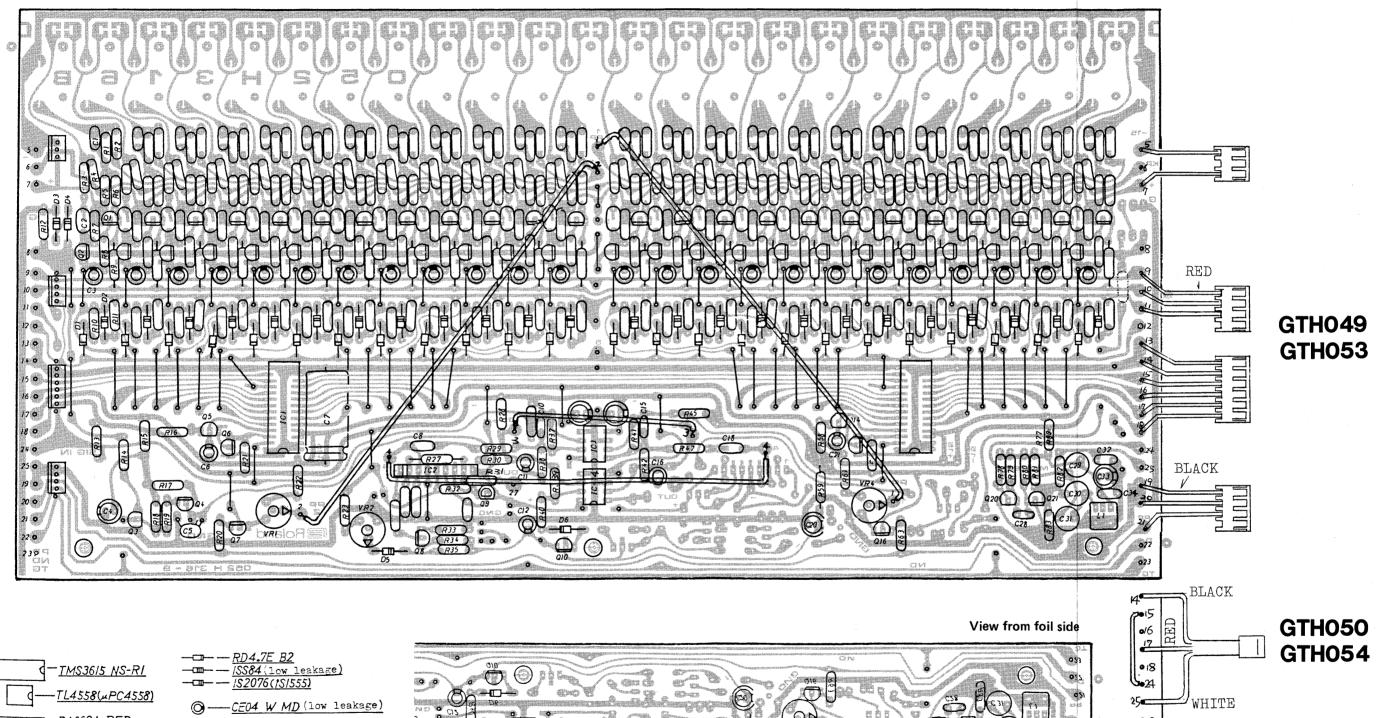
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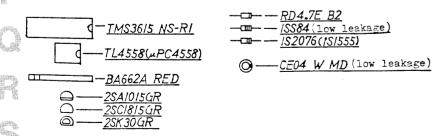
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GATE BOARD

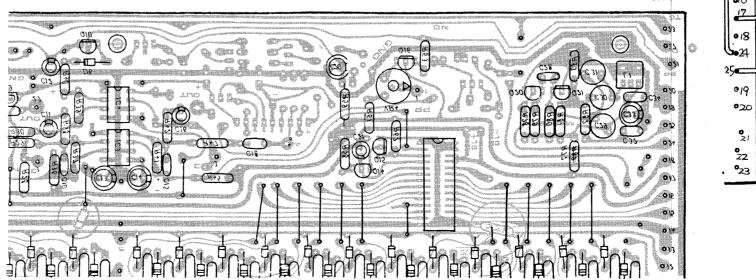
HP-60 GTH049 (147H049) GTH050 (147H050)

GTH053 (147H053) GTH054 (147H054) (pcb 052H316B) HP-70

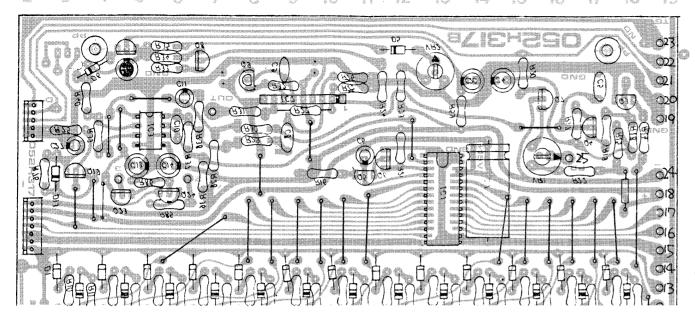




TMS3615 with number label needs replacement to be the same number. See Parts List for detail.



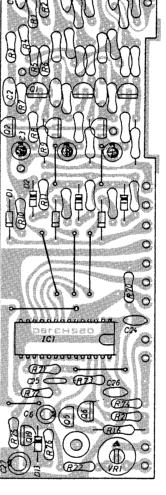
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36



GATE BOARD
HP-60 GTH048
(147H048)
(pcb 052H317B)

View from foil side

When replacing number labeled TMS3615, use the same no. only. See Parts List for detail.



GATE BOARD
HP-70 GTH-051
(147H051)
(pcb 052H318C)

View from foil side

